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Overdue Modernization Impedes Growth of Italy's Citrus Industry

By Roy E. McDonald and Lawrence A. Risse

This is the first article in a series examining the practices and procedures from harvest to export marketing in citrus industries of some of the world's major producers. In these countries—Italy, South Africa, Spain, Israel, and Morocco—visits with people responsible for citrus production, marketing, and research provided insight into the similarities and differences in various aspects of the industry in these countries, compared with those of the United States—the world's largest citrus producer.

Italy is the second largest citrus producer in the Mediterranean area and the only major citrus-producing country within the European Community (EC). The EC subsidizes Italy's citrus exports, finances nurseries, packing and processing plants, provides subsidies for varietal replacement, and supplements grower incomes during the nonbearing stage of tree growth.

Despite these advantages, the Italian citrus industry is plagued by a proliferation of small, uneconomical packinghouses, malsecco disease, and fierce competition from other, more modern citrus producers in the Mediterranean area.

Production of Italian citrus—lemons, oranges, tangerines, and grapefruit—is confined primarily to the coastal areas of Sicily, which account for 97 percent of the lemons and 88 percent of the oranges exported from Italy. Some citrus is also produced in the coastal areas in the southern part of the peninsula.

Italy's citrus industry, which ranks first and second in lemon and orange outturn,

respectively, in the Mediterranean area, but fourth in fresh citrus exports (behind Spain, Israel and Morocco), is typified by small, family-run producers, packers, and processors—geared toward satisfying domestic demand for citrus and citrus byproducts.

It is this traditional pattern that keeps the industry from expanding to any great degree. Grading and packing, which are done manually in these facilities, frequently are not up to standards demanded by more quality-conscious West European markets.

Despite subsidies, Italy has lost a substantial share of its market in the EC, which imports most of its citrus from suppliers such as Spain, Morocco, and Israel, that provide a better quality product. The EC also imports citrus from the United States and South Af-

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Top: Barrels of lemon juice—an important Sicilian export commodity—are loaded aboard a cargo ship at Messina. Above: Sicilian workers packing citrus by hand—the traditional "maidda" method.

rica during the summer months.

Some 70 percent of Italy's orange production is of the pigmented blood orange favored by Italians.

To improve its production and marketing operations, the Italian citrus industry is to be restructured under EC financing plans. These programs include varietal conversions of 42,000 hectares, as well as funding for new citrus packing and processing plants, and new storage and distribution facilities.

Italy's 1977/78 citrus production is forecast to drop some 14 percent to 2.6 million tons, compared with the estimated 3.0 million-ton crop of 1976/77, owing to unseasonable weather and hot winds that damaged much of this year's crop.

Orange production in 1977/78 is forecast at 1.51 million tons, 21 percent less than the 1,899,700 tons produced in 1976/77. The decline is the result of unfavorable weather during most of the year, including excessive rains early in the season and hot winds and drought during the fall.

Fruit size reportedly is not uniform, particularly in areas where irrigation water was short. Early varieties are especially affected by the lack of uniform size.

Sicilian Oranges

Oranges are grown most extensively in Sicily in an area from Catania westward to the interior and near Ragusa.

Predominate orange varieties include Tarocco, Sanguinello, and Moro (all blood oranges), as well as Common Blond, Oval, and Washington Navel (blond varieties).

Tangerine output in 1977/78 is forecast at 313,000 tons, 13 percent less than the 358,750 tons produced last season. The decrease is the result of adverse wea-

ther similar to that described for orange orchards. Lack of rain in recent months has caused the tangerines to be small.

As in the United States—the world's top citrus producer—most of Italy's citrus production is consumed domestically. Last season, approximately 13 percent of Italy's orange output was exported, with another 12 percent processed.

The United States and Italy are the world's largest producers of lemons, alternating the top position from year to year, with the United States on top in 1976/77.

Italy's total lemon production for 1977/78 is forecast at 788,000 tons—almost the same as the estimated 792,100 tons of 1976/77. Production is concentrated along the Sicilian coast from Catania northward to Messina and west to Palermo. Lemons are also grown extensively south of Siracusa in southern Sicily.

Lemon quality for the 1977/78 crop is only fair, as recent drought drastically reduced the juice content.

Femminello is the predominate lemon variety produced in Italy, primarily during October through May. During May to August, Italy produces a lemon known as the Verdello, which normally accounts for 15 percent of total production.

The Verdello, which has a thinner peel and less seeds and juice than nonforced lemons, is produced by artificially inducing growth. A drought is created by withholding irrigation water from lemon trees in June and July; at the end of July, irrigation water and nitrogen fertilizer are applied heavily. New blooms are set from mid-August through September, with the fruit harvested in May through August.

Sour orange predominates as the rootstock for lemons and oranges, with Carrizo

and Troyer citranges used to a lesser extent.

Italy also produces a small amount of grapefruit—forecast at 1,800 tons in 1977/78, compared with 1,875 tons in 1976/77.

Malsecco and Research

One of the most troublesome problems for the Italian citrus industry is malsecco (dry rot) disease. Malsecco, which is caused by the windborne fungus *Phoma tracheiphily* and is more prevalent on trees injured by frost, first appeared in Italy during the 1920's on budwood from Greece.

When the disease first struck, it seriously damaged the Italian citrus industry. Since 1948, a research program on malsecco has been conducted—primarily at the University of Bologna and at Acireale, a branch of the University financed through the Ministry of Agriculture.

Bud sports, which were found to be resistant to the disease, have led to most of the new commercial varieties of citrus grown in Italy. Within the Femminello variety of lemon, there are several strains that are very sensitive to malsecco and others that are resistant. Two of the latter strains are S. Teresa and Zagara biauca.

Breeding work is continuing on malsecco-resistant varieties and strains; however, there is an inverse relationship between fruit quality and resistance.

Other means of controlling malsecco that are being employed include pruning, the use of hail nets, and withholding cultivation during October through March, the time of year when the fungi can be spread more easily from the soil.

Other research work conducted at Acireale deals with mechanical harvesting and pruning, tangerine-grapefruit hybridization, general pest control, and a budwood cer-

"Despite subsidies, Italy has lost a substantial share of its market in the EC, which imports most of its citrus from suppliers such as Spain, Morocco, and Israel, that provide a better quality product."

tification program.

Although most of the operations in Italian citrus packinghouses are similar to those in the United States and other citrus-producing countries, it is the size of the plants—as well as loosely enforced standards—that keep Italy from being one of the more modern processors and distributors.

Italy only has five packinghouses with a production capacity of more than 15 tons per hour. On the other hand, it has some 300 operations—nearly 75 percent—with a capacity of only 2-5 tons per hour.

To some extent, the very large number of small packinghouses can be attributed to the Italian labor situation. The small packinghouses are family-run, with family members paid according to work performed.

Packinghouses buy their fruit from producers in two ways: Smaller houses often buy their citrus on-the-tree, while larger operations generally buy citrus at the farm gate, where it already has been harvested, graded, and placed in 20-25 kilogram plastic field boxes.

Packinghouse Operations

A typical Sicilian packinghouse operation includes:

- Dumping the fruit into soap tanks, which may or may not contain the fungicide SOPP;
- Brushing the fruit with a soap solution;
- Drying the fruit by heat or by air, depending on the type of wax to be used;
- Waxing the fruit with a wax containing the fungicide TBZ;
- Handgrading to pick out the rough fruit;
- Individual marking of fruit with stamp or label;
- Sizing;
- Hand or machine wrapping of some fruit; and
- Placepacking fruit by hand.

Most Italian citrus packinghouses have regular customers—both foreign and domestic—for whom individual pack service is provided. As a result, there are a variety of citrus grades and pack sizes geared to each market—a method that is both uneconomical and prohibitive to major world trade.

Export Trade

Italian lemon exports during October 1976-July 1977 declined 6 percent from year earlier levels to 233,567 tons; value of exports, however, was up 19 percent. Exports to Western markets declined owing to competition from a better quality product from countries with rather new lemon industries—Spain, Turkey, and Greece.

West Germany remained Italy's top customer for lemons, taking 63,921 tons, although this was 16 percent less than the year before. But East European countries continue to be important customers for Italian lemons.

Exports to Poland during October 1976-July 1977 (compared with those of 1975/76) were 37,343 tons (down 12 percent); to Czechoslovakia 30,665 tons (up 36 percent); to the USSR 22,628 tons (down 4 percent); and to Hungary 10,210 tons (up 2 percent).

During the period August-September 1977, for which statistics are not available, Italian exports were negligible, owing to poor quality of lemons in general and reduced output of Italian Verdelli. In addition, there was strong competition from Spanish Vernas in most foreign markets.

The outlook for 1977/78 lemon exports is for some 230,000 tons to be shipped, 4 percent less than last year.

Lemon exports to EC countries received penetra-

tion premiums—EC subsidies for shipments within the Community—of 6.2 cents per kilogram in 1977/78, while exports to third countries received a 4.1 cents-per-kilogram subsidy.

Exports of fresh Italian oranges in 1976/77 (November-July) were 248,766 tons, up 27 percent from 1975/76. Exports in 1977/78 are expected to decline 8 percent to 230,000 tons, owing to shorter supplies and higher prices.

Major destinations for Italian oranges in 1976/77 were European countries: West Germany, as usual, was the top importer of Italian oranges with 65,174 tons (up 10 percent), followed by France, 56,216 tons (up 172 percent); Switzerland, 38,445 tons (down 7 percent); Austria, 23,314 tons (up 4 percent); and Sweden, 15,312 tons (down 13 percent).

Some 89 percent of the orange exports were of the blood type, which while fairly well known in certain limited areas of southern Germany, Switzerland, and Austria, are not the generally preferred types in European markets.

Italy's fresh orange shipments to other EC countries also received a penetration premium, which was boosted this year to a range of 5.6 to 9.9 cents per kilogram, depending on the variety of orange. The subsidy paid on exports to countries outside the EC ranged from 5.0 to 7.5 cents per kilogram.

Italian tangerine exports during 1976/77 (November-July) are placed at 21,543 tons, 17 percent less than those of a year earlier. Value of exports was up 24 percent, however.

Top importers of Italian tangerines in 1976/77 were West Germany (7,554 tons), France (5,387 tons), Switzerland (2,051 tons), and Austria (2,605 tons). Export subsidies and penetration

premiums are also paid on tangerines.

Some 25,000 tons of tangerines may be exported in 1977/78.

One large citrus exporter in Palermo who exports 60,000 tons of citrus annually, stated that he exports primarily to southern West Germany, the USSR, and other East European countries because West European countries require a higher quality product than he can deliver.

Processing

One of Italy's largest citrus processors was visited in Palermo. One source there felt that Government intervention support payments to aid and support citrus producers are considered detrimental to the processing industry.

Intervention support payments, he claimed, were driving processors out of business because they cannot pay the growers a price equal to the intervention price.

During the 1976/77 season, some 150,000 tons of lemons and oranges, accounting for some 11 percent of output, were expected to be destroyed through intervention payments.

Besides intervention payments to growers, AIMA (Agency Intervention Market Agricultural Products) also has a program of subsidies for processors of Common Blond and blood oranges. The program for blood orange processing has not been too successful because this type of orange is not processed to a great extent.

However, restrictions on the use of artificial color in many countries is creating interest in blood orange juice, particularly that of Sanguinello, for use in food processing.

The lemon industry has pressed the EC for a subsidy for processing lemons only



Italy has about 900 central warehouses for fruits and vegetables located directly on railway lines for fast transport to markets. This warehouse, in Verona, has refrigerated storage capacity for fruits and vegetables.

of third (lowest) quality. As a result, a program similar to the one for Common Blond oranges will probably be in effect for lemons in the 1977/78 season.

Most of the Italian lemon and orange juice production is concentrated and sold for use in the soft drink industry. Only small amounts are sold single strength for direct consumption. The disposition of processed lemons and oranges is:

- Lemons—5 percent single strength; 95 percent concentrated for industrial use, of which 80 percent is exported.
- Common Blond oranges—1 percent single strength; 99 percent concentrated for industrial use, of which 50 percent is exported.
- Blood oranges—20 percent concentrated for reconstitution, of which 75 percent is exported; 80 percent concentrated for industrial use, 50 percent of which is exported.

It is unlikely that Italy will

import any citrus concentrates for blending from foreign sources, as Italian law prohibits importation of citrus or citrus products. The law forbids fresh citrus import for phytosanitary reasons.

Grapefruit, however, is allowed to be imported because it is classified as a tropical fruit, not as citrus.

According to U.S. trade statistics, the United States exported some 1,314 tons of fresh grapefruit to Italy in calendar 1976, as well as 78,669 liters of single-strength grapefruit juice and 81,260 liters of grapefruit concentrate.

There is some concern over the future of processed citrus products for export. Last season, concentrated orange juice from Brazil and Argentina was priced 20-25 percent less than the Italian products in European markets, even after the imposition of a 19-percent import duty.

Italy is also a major pro-

ducer of essential citrus oils, with an average annual extraction of 1,245 tons. All citrus fruits used for essential oil extraction—apart from bergamot, which is grown in Calabria—are produced in Sicily. These oils are used in perfumes, cosmetics, colognes, and are also blended with essences from other sources.

The Future of the Industry

Most producers, processors, and exporters visited felt that the Italian citrus industry will most likely remain small, continuing to satisfy domestic demand; exports will probably not increase substantially from present levels, unless the basic structure of the industry is modernized.

The huge plan to restructure the Italian citrus industry with financing from the EC that was implemented 2 years ago is showing some results, but appears to be much behind schedule.

The citrus experimental

station in Acireale is greatly expanding its premises and operations, even though the professional staff remains at some 35 units.

Despite new developments in malsecco control and hybrid research, lack of communication with the growers may be a problem that could limit the utility of some of the research efforts, as there is no extension service in Italy to disseminate research findings.

The EC funds appear to have been more useful in the creation of new packing-houses and a few new processing plants. Improvements also are being made in the grading and packaging equipment used in these plants.

But on the whole, the Italian citrus industry still has a long way to go if it wants to meet competition from more modern and quality-conscious competitors, which at present are edging Italy out of traditional citrus markets. □

Observers of Soviet agriculture still are evaluating the aims of USSR farm plans for 1978, which call for increases in production of grain, livestock, and meat, as well as sizable capital investments in farm equipment and facilities.

As usual, the key to larger Soviet farm output is the weather. In fact, unusually good weather will be required if production is to rise the planned 7 percent. And failure of the weather to cooperate could result in an overall drop in farm output.

Soviet agricultural production climbed in 1976 and 1977, aided by relatively favorable growing conditions. But these increases put the 1977 base at such a high level it is believed the USSR will have difficulty achieving the sector increase programmed for 1978. Also, USSR gains are usually smaller than 7 percent a year.

Between 1961-65 and 1971-75, the Soviet production rise averaged only a little over 3 percent a year. After setting a production record in 1973, the USSR fell short of this mark each year until 1977, when output was 1 percent greater than the previous record.

Weather in 1977 was relatively favorable for fall field work, providing a good prelude to the 1978 crop season. Soil moisture was generally good in the winter-grain regions, and the delayed arrival of fall weather permitted adequate early development of winter grains and facilitated plowing. Winter-sowed grain area totaled 37 million hectares in 1977, an area equal to that seeded in the fall of 1976.

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Soviet 1978 Farm Plans Still Under Examination

By Fletcher Pope, Jr.

The condition of winter grains at dormancy in 1977 was described by Soviet sources as being generally good. Several cold snaps in December and January and limited or no snow cover in some areas probably caused moderate damage to winter grains in parts of the Ukraine and north Caucasus. But for the USSR as a whole, damage to winter grain is judged to have been about average.

Fall plowing for 1978 crops was completed on 114 million hectares in 1977, meeting the set target. Area plowed was 13 million hectares more than was plowed in the fall of 1976, when a late harvest season and the early onset of winter impeded plowing. On-time completion of fall plowing in 1977 is expected to lighten the 1978 spring workload and may enhance crop yield prospects somewhat.

The Soviet Union's planned production of 220 million tons of all grains in 1978 seems to be optimistic unless favorable weather boosts yields. Grain area is expected to be about 128 million hectares, a figure more than 2 million hectares less than that in 1977, but about equal to 1975 and 1976 levels.

Prospects of attaining 1978 production goals for major industrial crops are mixed. Barring unfavorable weather, the cotton harvest target of 8.5 million tons

should be exceeded, as it was in 1977.

On the other hand, sugarbeet and sunflowerseed goals are probably too optimistic unless weather is unusually favorable in major growing regions. Only in 1976 was the 1978 goal of 96.2 million tons of sugarbeets equaled or exceeded.

The 7.5-million-ton sunflowerseed target, if achieved, would set a new production record, one slightly larger than the excellent 1973 crop. However, for a record 1978 sunflowerseed harvest to be achieved, excellent weather must prevail during the entire season.

Prospects for Soviet livestock production in 1978 are generally favorable. Cattle, cow, and poultry numbers on January 1, 1978, were at record highs. However, hog numbers fell 2 million head short of matching the 72.3-million-head record of January 1, 1975. On the other hand, poultry numbers have more than recovered from the results of distress slaughtering brought on by the 1975 drought.

Soviet livestock product goals probably can be met. Meat production in 1978 is expected to easily exceed the 1975 record of 15 million tons, but may fall short of the 15.6-million-ton goal in 1978. Compared with output in 1975, beef, veal, and poultry meat production is expected to account for a

large part of the increase.

The 1978 production goals of 95.4 million tons of milk and 62.6 billion eggs appear to be attainable unless adverse weather reduces feed availabilities and interferes with production.

The Soviets are still giving high priority to achieving planned levels of food and fiber output, and are allocating sizable shares of their financial resources to this end.

Capital investment in the agricultural sector is seen totaling 33.5 billion rubles, an increase of 600 million rubles over such investments in 1977. (Currently, at the official Soviet rate, 1 ruble equals roughly US-\$1.40. However, the ruble is discounted considerably when traded on West European markets.)

Almost a third of the State's capital investments in agriculture this year (7.3 billion rubles) is for land reclamation. A total of 821,500 hectares of newly irrigated land is to be brought into production in 1978, as well as 942,000 hectares of drained land, and 7.2 million hectares of watered pastureland. In 1977, 860,000 hectares of irrigated land were brought into use, as were 830,000 hectares of drained land, and 7.9 million hectares of pastureland supplied with water for livestock.

An additional 15 percent (3.4 billion rubles) of State investment in agriculture this year is to be used to construct poultry and livestock complexes. Facilities to produce an additional 37 million broilers and 5.3 million layers are to be built. Livestock complexes to handle 70,000 head of cattle and 437,000 head of swine also are to be completed this year.

These poultry and livestock facility plans appear to be scaled down somewhat

from what was apparently achieved in this field in 1976.

Agriculture is scheduled to receive 80.2 million tons of mineral fertilizer during 1978, somewhat less than originally planned but about 4 percent more than the 77 million tons delivered in 1977.

Soviet agriculture is to continue to receive large amounts of new equipment in 1978. Tractor deliveries are scheduled at 361,500 units, trucks at 270,000 and grain combines at 110,200.

Targeted tractor deliveries are somewhat smaller than the number delivered in 1976, but the drop will

probably be compensated for by increased horsepower which, between 1976 and 1977, rose from an average of 77 to 79.

Truck deliveries seem to be about on target in relation to the goals outlined in the 10th 5-year plan.

Planned combine deliveries are to be larger. □

IDA Loan to Sudan Aids Livestock, Port Development

The International Development Association (IDA), an affiliate of the World Bank, has approved two credits totaling \$47 million for port and livestock marketing projects in Sudan.

The \$50.7-million port project is a major step in the modernization and improvement of the country's only gateway to the sea, Port Sudan. IDA is providing a \$22-million credit, the Federal Republic of Germany a \$3.5 million loan, and the Overseas Development Ministry (ODM) a \$9.6 million grant.

The port project aims at improving the efficiency of operations through improved facilities, both at sea and onshore, for handling cargo to meet the port's immediate critical needs.

Project benefits include reduction in ship waiting time for berths, reduction in ship at berth for both loading and unloading cargo, reduction in damage to cargo, and reduction in freight on crude petroleum.

The \$43.1-million livestock marketing project represents a first step in the long-term development of Sudan's livestock industry. It will support, over a 6-year period, the creation of an organized national livestock marketing system through the improvement of both market and transport infrastructure. IDA is providing a \$25 million credit and the United Kingdom a \$3.1 million grant.

The project will result in increased supplies of meat and livestock products for local consumers and for export. In addition, there will be a cut in weight loss and maintenance costs. □

USSR Cuts Trade Deficit; Trade With U.S. Off

The Soviet Union cut its hard currency trade deficit sharply in 1977 to \$2.2 billion (1.6 billion rubles), the smallest deficit since 1974. The deficit reduction was achieved by cutting back imports of both agricultural and nonagricultural products while pushing exports, according to data recently released by the USSR.

(The countries involved are the 90 with which the Soviet Union has agreed to settle any trade imbalances in hard or convertible currency.)

On a bilateral basis, trade between the United States and the Soviet Union showed a sharp decline in 1977.

According to official U.S. figures, the value of total U.S. exports (agricultural and nonagricultural) to the Soviet Union reached \$1.6

billion in 1977, down sharply from the \$2.3 billion of 1976. Soviet data indicated that the United States ranked fifth among the hard-currency trade partners in 1977 in total two-way trade—behind West Germany, Japan, Italy, and France—compared with its second-place ranking in 1976.

As a source of USSR imports, however, the United States ranked third, behind West Germany and Japan.

U.S. agricultural exports to the Soviet Union totaled \$1.1 billion in calendar 1977, down nearly one-third from 1976's, but still making 1977 the third best year on record. A sharp cutback in USSR imports of U.S. corn accounted for most of the decline.

U.S. grain exports to the Soviet Union totaled 6.8 million tons, more than one-third below the 1976 tally. Wheat exports increased to

3 million tons from the 1.7 million of a year earlier. Corn exports, however, at 3.6 million tons, were down nearly two-thirds from the 9.5-million-ton total of 1976.

The Soviets also imported 565,000 tons of U.S. soybeans and 88,000 tons of U.S. rice. Nongrain shipments included 6,300 tons of whole frozen chickens, 6,000 tons of almonds, and 1,600 tons of hops, all more than in 1976.

The USSR's overall balance of trade showed a significant improvement in 1977 over that of 1976. The overall trade balance returned to a surplus position, recovering from the deficit registered in 1976. Trade with the Socialist and developing countries continued in surplus. Trade with the "industrial capitalist" countries continued in deficit, but the value of the deficit dropped by more than half. □

By Judith G. Goldich, International Trade Policy, FAS.

USSR: Trade with Major Hard-Currency Partners

[In thousands of U.S. dollars]

Country	1976			1977		
	Exports	Imports	Trade balance	Exports	Imports	Trade balance
United States	264	2,665	-2,401	369	1,713	-1,344
West Germany	1,420	2,576	-1,156	1,660	2,369	-709
France	1,028	1,226	-198	1,113	1,228	-115
Italy	1,420	942	478	1,481	1,073	408
Japan	994	1,822	-828	1,159	1,961	-802
United Kingdom	1,095	542	553	1,301	509	792

Philippines Cuts U.S. Share of Its Farm Imports and Exports

Farm exports from the United States to the Philippines and share of the market sagged in 1977, largely because of lower shipments of wheat and raw cotton. The Philippines share of the U.S. market also dropped somewhat, although the value of farm exports to this country rose, buoyed by U.S. takings of coconut, canned pineapple, and abaca.

Coconut products as a group probably was the Philippines top dollar earner in 1977 and coconut oil has replaced sugar as the biggest single commodity exchange earner.

Agricultural imports—estimated at \$381.5 million—were about 5 percent above the 1976 level of \$363.4 million. As in 1977, wheat will continue as the top agricultural import in 1978. Other leading imports last year were raw cotton, nonfat dry milk, tobacco, and soybean meal.

During 1977, agricultural products accounted for nearly 50 percent of total Philippine export earnings, up from 48 percent in 1976. With the exception of abaca, export earnings of all Philippine agricultural exports were up. Philippine farm product import value also was up by 5 percent over the previous year's. Imports of

wheat and raw cotton were probably lower than in 1976, but were offset by substantial gains in dairy and feedstuff imports.

These changes in the Philippines trade pattern came in a year when the Philippines saw its economic growth slow somewhat, compared with that of the previous year, and its gross national product growth rate in real terms slump from 6.7 percent in 1976 to 6.1 percent in 1977. The country's inflation rate was up from 6.2 percent in 1976 to 7.9 percent in 1977, while its per capita gross national product (in real terms) was 3.1 percent higher than in 1976.

Preliminary estimates by the Philippine National Economic and Development Authority indicate that the gross value of agricultural production (including forestry and fishing), in constant 1972 prices, rose by only 4.9 percent in 1977, compared with 7.9 percent the previous year. For agriculture alone, the increase was 5 percent, down from 7.6 percent a year earlier.

The value of crop production rose 5.0 percent; livestock, 3.7 percent; and poultry, 9.2 percent. Major value increases were racked up by rice, 7.8 percent; corn, 9.1 percent; and bananas, 22.5 percent. Sugarcane value dropped 17.1 percent; and coconut products, 1.3 percent.

Production and trade highlights:

Cotton. According to the



A "cowboy" herding cattle on Philippine ranch, top; farm worker transplanting 3-week old rice seedlings from seedbed to paddy.

Philippine Cotton Corporation (PCC), 1976/77 cotton production was 1,200 metric tons of seed cotton from a harvested area of 2,400 hectares. Production in 1977/78 is expected to be 2,100 tons from a planted area of about 3,250 hectares, although a continuing shortage of rainfall could alter output prospects. Lack of credit is one of the major causes for the slow growth

of planted area.

Imports of raw cotton declined 22 percent during 1976/77 and totaled only 23,781 tons. Raw cotton prices were higher than synthetic fiber, causing domestic demand for cotton products to stagnate.

In 1977/78, imports are expected to move up to 28,500 tons—and the U.S. share could approximate 65 percent—a sharp drop from

Based on dispatch from Glenn R. Samson, U.S. Agricultural Attaché, Manila.

traditional levels.

Wheat. Wheat and flour imports during 1976/77 (July-June) totaled 775,000 metric tons, 29 percent higher than in 1975/76 primarily because of lower world market prices, the availability of Commodity Credit Corporation credit, and some increases in demand. The U.S. share of Philippine wheat imports declined to 55 percent, owing to exceptionally low prices for Canadian wheat during the latter months of 1976.

In 1977/78, imports are expected to be near the previous year's level, but most of them will come from the United States. According to Canadian Wheat Board officials, Canada may not be able to offer large volumes of wheat to the Philippines until June 1978.

Rice. According to official estimates, the Philippines produced 3.9 million tons of rice in 1976/77, 5 percent above the previous year's output. Unusually favorable weather, expanded irrigation, and stable farm prices—brought about by increased procurement by the National Grains Authority (NGA) at the support price—were largely responsible for the rise. As a result, the Philippines was able to meet its internal demand for rice from domestic production for the first time in a decade.

Production in 1977/78 is currently estimated at 4.2 million tons, 10 percent above last year's, although the late 1977/early 1978 drought has hurt the upland rice crops. Generally favorable weather during the growing and harvesting seasons of the first crop more than offset small losses caused by the only typhoon to hit central Luzon this year. A crop of 4.2 million tons will result in record yearend stocks of over 1.2 million tons.

Record palay (rough rice

prior to husking) output in 1974/75 and 1975/76 and another estimated record in 1976/77 has helped the Philippines to shift from its role in the early 1970's as a heavy rice importer to an exporter by the end of 1977. (See *Foreign Agriculture*, April 24, 1978.)

Corn. Philippine production in 1976/77, estimated at 2.8 million tons, was 3 percent above that of the previous year; area was up 2 percent. However, corn production would probably have been greater but for continuing insect and disease problems, as well as overall insufficient use of inputs.

The Philippines current rice supply-demand balance has enabled the country to turn its attention to increased production of corn, sorghum, soybeans, and mongo beans. On July 1, 1977, the Government launched Maisan 77, a program to encourage corn production with a goal of achieving corn self-sufficiency within 3 years by boosting yields of farmers in the program.

Sugar. Centrifugal sugar production in the September 1976-August 1977 season is officially estimated at 2.7 million tons from an estimated harvested area of 492,000 hectares. This 7-percent production drop (compared with the previous year's outturn) is attributed primarily to reduced hectareage and lower sugarcane yields. However, higher juice content of the cane lessened the impact of the area cut.

Unofficially, sugar exports in 1977 are estimated at 2.1 million metric tons, 81 percent greater than those of the previous year. The United States took 1.1 million tons of Philippine sugar in 1977, the USSR 605,000 tons.

Production in the 1977/78 crop year is expected to range between 2.2-2.4 mil-

lion tons. Reports early in 1978 indicate lower cane yields and in some cases reduced purity, compared with earlier year levels. However, area is up to estimated 17,000 hectares, mainly to provide cane to four mills recently constructed.

In 1977/78, exports are forecast to reach 1.7-1.8 million tons, compared with calendar 1977 exports of 2.5 million tons. The International Sugar Agreement gives the Philippines a basic quota of 1.4 million tons; however, this has been reduced to about 1.2 million tons for the current calendar year.

Coconut. The United Coconut Association of the Philippines (UCAP) estimated 1977 copra production at 2.4 million tons, 11 percent under last year's output mainly because of below normal rainfall in 1976.

Copra exports in 1977 declined to 635,000 metric tons, compared with 823,000 tons the previous year. Coconut oil exports totaled 714,000 tons, 63 percent to the United States. Copra cake and meal exports were 436,000 tons and dessiccated coconut, 98,000 tons. According to the National Census and Statistics office, the aggregate volume of coconut product exports declined 17 percent in 1977, but their total value rose to \$29 million, 36 percent above the previous year's.

In 1978, recent favorable weather and relative good prices are expected to push copra outturn to 2.6 million tons, 7.5 percent greater than the year-earlier level.

Tobacco. Philippine production of Virginia flue-cured tobacco, at 45,000 tons (farm-sales weight), was about 6 percent less than in the previous year. Dry weather and poor crop management not only reduced the output level but also resulted in lower leaf quality. Recently adopted tobacco

trading rules—implemented after most of the 1977 crop had been planted—had little effect on the level of production, but new quality standards reduced the volume of tobacco graded A and B and increased the amount of so-called non-descript tobacco.

Contrasting with the drops in Virginia and cigar tobacco outturns, that of burley rose in 1977 to 8,250 tons, 21 percent above the previous year's. Good weather last year helped bring about a 6 percent gain in yields; quality was good and most farmers considered selling prices satisfactory.

Virginia flue-cured tobacco production for 1978 is estimated at 40,000 tons and could exceed this level if effects of the shorter term dry spell are not too widespread.

Pineapple. Production of fresh pineapple continued to increase during 1976/77, totaling an estimated 450,000 tons (fresh fruit equivalent). Production in 1977/78 is expected to reach 500,000 tons as two of the larger Philippine plantations increased their area by about 10 percent in 1976. Production of canned pineapple in 1976/77 was about 175,000 tons; single-strength juice outturn was 19,350 tons and that of juice concentrate, 20,900 tons.

Exports of fresh pineapple in 1976/77 jumped to 69,618 tons, 34 percent above the previous season's level. Japan was the major export destination, taking 96 percent of the total. Canned pineapple exports, mostly to the United States, totaled 145,179 tons, 13 percent higher than the 1975/76 level. In 1977/78, exports of fresh pineapple are seen rising to 85,000 tons, canned pineapple exports to 160,000 tons.

Livestock. During the first quarter of 1977, the Philip-

Continued on page 15

U.S. Farm Exports— Questions and Answers:

PART I

"The competitive ability of U.S. agriculture has remained high and even improved during the 1970's. In addition to U.S. agriculture's well-known efficiency, its competitiveness has been enhanced by the United States' relatively good record in controlling inflation and the general decline in the foreign-exchange value of the dollar."

So said Dr. Dale E. Hathaway, Assistant Secretary of Agriculture for International Affairs and Commodity Programs, in his February 23, 1978, testimony before the Senate Subcommittee on International Finance. Dr. Hathaway cautioned, however, that the United States faces intense competition in foreign markets for a number of commodities, including poultry meat, soybeans and products, cotton, and tobacco.

He also said that new conditions and problems face U.S. agricultural exporters today. "As 1978 unfolds, we face . . . extremely high world-market prices for petroleum . . . sluggish economic growth in some major nations abroad . . . a great deal of difficulty here and abroad in reducing inflation . . . shifting exchange rates, and . . . growing pressures for protection against imports."

In this and subsequent issues, Foreign Agriculture is publishing a set of questions and answers—also entered into the record of that hearing—regarding the competitiveness of U.S. agriculture in world markets.

The questions had been submitted on January 23, 1978, to the Secretary of Agriculture by the Chairman of the Committee.

Q In what products and geographic markets has the United States been a successful exporter, and why?

A. **Grains.** The United States is the largest grain exporter in the world, accounting for 50 to 55 percent of total world grain trade in recent years. World grain trade has risen sharply in the 1970's, with the United States capturing most of the increase and improving its market share. Exports of both wheat and corn contributed to this growth. In the future, corn is expected to account for additional increases as the world demand for livestock feed increases.

U.S. grain exports move worldwide. The major markets are Japan, Europe, and the USSR.

One of the major factors for increased U.S. export volume in the 1970's has been the success in supplying grain to the USSR and East European markets.

In the case of the USSR, the United States now has a formal agreement guaranteeing that at least 6 million tons of U.S. wheat and corn will be sold to the USSR each year. Prior to the signing of the agreement, purchases by the USSR had been erratic and at times caused serious disruptions in U.S. grain prices.

In Eastern Europe, expanded demand for livestock products has increased the need for feedgrain imports, with the United States taking the major share of the gain. The extension of Commodity Credit Corporation (CCC) credit has been an important means of increasing U.S. grain sales in Eastern Europe.

Another very significant factor has been the transfer by

U.S. market development cooperators of technology regarding the processing and utilization of U.S. grains.

Oilseeds and products. U.S. exports of these commodities in calendar 1977 were a record 23.0 million tons (aggregate of oilseeds, meals, and oils), valued at more than \$6.6 billion.

Despite tough competition from developing countries like Brazil, Argentina, and Malaysia, the United States managed to maintain a respectable share of the world market for oilseeds and oilseed products.

Currently, the U.S. share of the total soybean meal export market—with soybeans converted to a meal equivalent basis—approximates 65 percent (49 percent in the form of beans and 16 percent as meal). The U.S. share of the world soybean and soybean oil market—oil basis—currently stands at about 71 percent. On the total fats and oils basis, the U.S. share of the world market ranges between 27 and 38 percent.

Nearly all developed nations and even a number of centrally planned and developing nations are significant markets for U.S. exports of these commodities. Japan, the Netherlands, and West Germany are the largest three markets.

Soybeans are a protein-rich source for meal used as a feed ingredient in the livestock and poultry industries. No other country at present is able to produce so greatly beyond domestic requirements as the United States is able to. World demand for soybeans has grown as the demand for meat has grown along with gains in world income.

The P.L. 480 program has made a significant contribution to the expansion of vegetable oil exports from the United States. Currently, U.S. concessional sales of soy-

bean oil account for about one-third of total exports of U.S. soybean oil.

Market promotion activities also have had a positive impact on oilseeds and oilseed products in general.

Cotton. In 1976/77 (August-July), U.S. cotton exports were 4.8 million bales, 27 percent of world trade. This kept the United States the world's largest cotton exporter. The 1976/77 volume was substantially higher than average shipments of 3.2 million bales during the recent period of low shipments, 1968/69-1971/72, but not as high as the recent peak level of 6.1 million bales in 1973/74. The 1976/77 level should be improved upon in 1977/78.

The Far Eastern countries have taken over three-quarters of U.S. shipments in recent seasons. Japan and Korea, each of which now receives over 900,000 bales of U.S. cotton annually, are the two most important buyers.

Long-term business ties—fostered by promotional efforts by foreign mills and the Cotton Council International—are partly responsible for the favorable U.S. position in the Far East. Proximity and availability of cotton in quantity and a variety of descriptions (cotton classifications) are also important, as are the benefits of CCC credit, P.L. 480, and (in Japan) Export-Import Bank loans. CCC credit has been important in the Korean market, while P.L. 480, now less important in Korea than some years ago, is important in Bangladesh and Indonesia.

Tobacco. The U.S. market share in tobacco has not been increasing. U.S. leaf tobacco exports in 1977, at 262,179 tons, accounted for 21 percent of total world tobacco trade. This is down from 24 percent in 1973 and perpetuates a slow long-term downtrend that is expected to continue in the foreseeable future.

The best markets for U.S. unmanufactured tobacco exports have been Western Europe and Asia. The European market, although declining in terms of U.S. share, has been the mainstay for U.S. leaf exports, taking almost one-half of the calendar 1977 total. The Asian market, primarily Japan, accounted for 35 percent of total U.S. unmanufactured tobacco exports during 1977.

Increased demand for blended cigarettes containing U.S. leaf has developed throughout the major U.S. markets since World War II. U.S. cigarette leaf has certain qualities that manufacturers find essential and unavailable from other countries.

Western Europe is deficit in leaf production and has relied heavily on the United States for its tobacco supplies. Restrictive trade policies and increasing quantities of cheaper leaf available from third country suppliers, however, have limited exports to this area in recent years.

Growing demand for higher quality cigarettes in Japan, Thailand, the Republic of China, the Republic of Korea, and the Philippines has fostered significant markets in these

increasingly important Asian countries.

U.S. cigarette exports to these areas and to the Middle East have increased sharply in recent years. Many countries have made the decision either to supplement domestic production with imports, or substitute imports for domestic output. This increased trade is abetted by the multinational nature of many large cigarette companies. U.S. cigarette shipments in calendar 1977 reached \$615 million—a new record.

Livestock byproducts. U.S. exports of livestock byproducts have witnessed a strong expansion in recent years. Larger exports of hides and skins, tallow and greases, and variety meats (offal) have been primarily responsible for this increase. In 1977, exports of hides and skins (mostly cattle hides) equaled \$578 million; tallow and greases, \$549 million; and variety meats (offals), \$158 million. Since 1970, the volume of cattle-hide exports has grown by more than two-thirds, and the volume of variety meats, by about 60 percent. The volume of tallow and grease exports has also grown, but less rapidly.

About half of the U.S. exports of hides and skins is sold to Japan and the Republic of Korea. Western Europe, Canada, and Mexico are also large markets.

Western Europe, Japan, and the Republic of Korea are the largest markets for U.S. tallow and greases. The European Community and Japan together imported 87 percent of U.S. variety meat exports.

U.S. hides and skins are derived primarily from grainfed cattle and are of high quality. Tallow and grease exports expanded sharply in 1977 as a result of lower world availability and, consequently, higher price of vegetable oils. While the European Community and Japan impose quotas and/or levies on imports of beef, imports of variety meats are subject to a duty only. As a result, retail prices of variety meats are low in relation to those of beef, encouraging strong consumption of variety meats in those countries.

Poultry meats. Since 1970, there has been an increase in the export value of these commodities of about 300 percent, with most of this success occurring since 1973. In volume terms, the increase in poultry meat exports has been about 180 percent.

Certain of the Far Eastern countries—Japan, Hong Kong, and Singapore—have been some of the longer term successes. European countries have been substantial markets for U.S. products in the past, and some of the Middle Eastern countries appear to have significant potential.

U.S. success in the Far East results from long-term market promotion efforts. The U.S. share is increasing even though some competing suppliers are closer. In Europe, extensive governmental, cooperator, and industrial efforts have been necessary to hold as much of these markets as possi-

Continued on page 16

U.S. Cotton Sales Strong In West European Markets

Sales of U.S. cotton to the three largest markets in the European Community—Italy, France, and West Germany—have been strong during the 1977/78 season, despite an overall reduction of total imports into these markets.

The U.S. export commitments to both France and West Germany were more than 80,000 bales as of April 2 and slightly more than 100,000 bales to Italy.

Total imports of raw cotton by both France and Italy are expected to be down moderately from 1976/77 levels because of continued slack textile demand and competition from manmade fibers and imported textiles.

Total imports are expected to reach 885,000 and 805,000 bales, respectively. Though experiencing the same problems, West Germany may import more cotton this season because of the low level taken in 1976/77.

Given the large amount already shipped, the market share held by U.S. cotton appears certain to rise in France and is likely to be higher in West Germany as well.

Also, the market share may slip slightly in Italy, where demand is particularly depressed for the qualities the United States usually provides and where shipments are trailing prior-season levels.

There are several reasons for the increased level of U.S. cotton sales to Western Europe, including the larger U.S. harvest and devaluation of the dollar. In addition, the Soviet Union, which has been a large supplier to European markets in recent

years, has been less aggressive than usual in offering its cotton.

Cotton production in Greece and Spain—sole West European producers—is expected to drop in 1978 significantly below the 1977 level of 822,000 bales (480 lb net), while cotton imports by these countries are expected to be higher in 1977/78 (August-July) than the preceding cotton marketing year.

Greece's 1978 cotton crop should fall below 600,000 bales, compared with the record 666,000-bale harvest of 1977. Declining farm

prices for the 1977 crop have discouraged production.

Imports in 1977/78 are estimated to be up slightly from the year-earlier level to 115,000 bales (25,000 metric tons). Of the 104,000 bales imported in 1976/77, about 37,000 bales came from the United States. U.S. cotton exports in fiscal 1977 (October-September) totaled 42,000 bales valued at \$14.4 million.

Spain's 1978 cotton output is expected to decline from the 1977 level because of high production costs, demands for higher wages and expanded use of hand picking to alleviate unemployment, and grower dissatisfaction with support prices.

Spain's raw cotton imports in 1977/78 may be up slightly from the 396,000

bales (85,000 of which were of U.S. origin) imported during 1976/77 in view of the smaller-than-expected 1977 crop.

In fiscal 1977, U.S. cotton exports to Spain were the second highest on record at 90,000 bales (108,000 bales of U.S. cotton were exported to Spain in October-September 1973/74) valued at \$33 million, displacing Italy as the leading cotton market in Western Europe. Spain has been importing more than half of the 550,000-600,000 bales it uses annually.

Spain's cotton producers in 1977 planted 39 percent more area in 1976, but unfavorable weather and labor problems in the main producing area held production to 155,000 bales, the smallest crop in 20 years. □

Canada Boosts Dairy Export Subsidies

Canada has boosted its budgeted total for 1978/79 dairy export subsidies 65 percent to the equivalent of US\$22 million.

The move is part of a comprehensive dairy policy package announced April 13 for the marketing year ending March 31, 1979.

The policy includes a 10 percent reduction in the global cheese import quota. The United States supplied 3.7 million pounds of Canada's 50-million pound cheese quota for 1977.

Individual producer quotas for manufacturing milk will be retained, but the over-quota levy has been raised 50 Canadian cents to C\$7.50 (US\$6.68) per 100 pounds.

Since the new package administers the quotas on a quarterly basis, dairymen will have incentive to reduce the seasonal variation as well as total output of milk.

The national quota for manufacturing milk remains at 9.8 billion pounds, with an extra 570 million pounds as a buffer for regional overproduction.

The target price for industrial milk was raised from C\$12.18 to C\$12.42 (US\$11.05) per 100 pounds, but the Federal subsidy was held at C\$2.66 per 100 pounds.

The 1977 levy on in-quota production was reduced from C\$1.20 to C\$1.00 per 100 pounds. The 20-cent difference will remain as a contingency levy on various classes of producers to be refunded to those who stay under their quota levels.

The new policy included a C\$1.00 levy per 100 pounds on all surplus cream diverted from fluid to industrial use. This is equivalent to 20 cents per 100 pounds on all fluid milk shipments,

comparable to the attempted 25-cent extra levy on all milk production during the 1977/78 marketing year.

The support price for butter was raised 4 percent to C\$1.27 (US\$1.13) per pound and for nonfat dry milk (NFD) by 3 percent to 74 Canadian cents (66 U.S. cents) per pound.

The Canadian International Development Agency's dairy product food aid authorization (principally NFD) remains at C\$20 million. The Canadian Dairy Commission budget for market promotion and research was increased from C\$4 million to C\$6.5 million.

The quota administration period will be adjusted in 1979 to begin August 1 instead of April 1, implying that individual and provincial quotas for 1978/79 will be unchanged from previously announced levels. □

Fishing Ban Sinks Hopes Of Turnaround in Peru

Following a Government ban in February on all fishing for industrial purposes, the outlook for Peru's total 1978 fish catch—along with fishmeal and oil production and meal exports—is not at all promising. It is unlikely that full-scale fishing off the Peruvian coast will resume before midyear or perhaps as late at September, according to Richard L. Barnes, U.S. Agricultural Attaché in Lima.

On April 17, a very limited fishing effort was authorized for industrial species, such as sardines, jurel, and needlefish. The ban on anchovy fishing remains in effect.

The ban in February imposed because of declining fish numbers spiked earlier optimism that 1978 would be the turning point in Peru's dwindling fishing fortunes.

During the first 6 weeks of this year, some 653,000 metric tons of fish, destined for meal and oil production, were caught in Peruvian waters. This sizable catch far exceeded expectations and, coupled with widely circulating rumors that anchovies were returning in large quantities, pointed toward a possible revitalization of the country's fishing industry.

It soon became clear, however, that this was not to be as most of the early catch consisted of sardines—and even their availability

was declining rapidly. Also included in the catch were many small anchovies that had neither spawned nor were large enough to yield optimum oil and meal outturns. If Peru had allowed such fishing to continue, the prospects of future catches would have declined further. So, on February 11, the Government imposed the fishing ban.

As a result of overwhelming evidence that fish populations were not abundant, a major Government-sponsored (EUREKA) exploration—originally scheduled for March—was canceled.

Preliminary estimates of Peru's 1978 fish catch are now placed at 2.0 million tons, about the same as 1977's, but 50 percent under 1976's total of 4.0 million and well below the levels of 3.1 million in 1975 and 3.6 million in 1974. In addition, some sources are predicting that Peru's total fish catch will not exceed 1.5 million tons in 1978. If this is the case, Peru's supply of fishmeal for domestic consumption and export as well as oil for home consumption will be reduced accordingly, Barnes reported.

The dropoff in the 1977 and 1978 catches stands in sharp contrast to Peru's anchovy catches of 10.3 million tons in 1971 and 12.4 million in 1970. The low point in the seventies was recorded in 1973 with an

anchovy catch of only 1.85 million tons.

The composition of the 1977 total catch, compared with 1976's, revealed a decline of nearly 80 percent—from 3.9 million tons to only 792,000—in anchovies while the portion of "other fish" soared nearly eightfold, from 141,000 tons to 1.2 million. This pattern continued with the large—but still disappointing—catch early this year before the fishing ban went into effect.

Peru's fish catch through February 10, 1978, yielded outturns of 150,420 tons of meal and 23,098 tons of fish oil. Forecasts put the country's meal production for all of 1978 at 440,000 tons, about the same as last year's. Meal output slipped 44 percent from 886,000 tons in 1976 to an estimated 493,000 last year. This year's oil production is projected at 80,000 tons, compared with 101,000 tons in 1977 and 104,000 in 1976.

Stocks at the beginning of 1978 were down 35 percent for fishmeal and 53 percent for fish oil from the year-earlier totals. The early 1978 catch, however, helped replenish these levels as stocks of fishmeal rose from 112,000 tons on December 31, 1977, to 162,000 on February 10, 1978, while fish oil stocks jumped from 8,000 tons to 28,000 in the same period. In August 1977, Peru's reserves had hit a 2-year low of 45,000 tons of meal and 2,300 tons of oil.

Peruvian fishmeal exports fell 30 percent from 624,000 tons in 1976 to 436,000 last year, but unit-price increases pushed export earnings up 3 percent from US\$178 million in 1976 to US\$184 million in 1977. The export forecast for 1978 is about 400,000 tons and prices are expected to hold firm or increase slightly. Vir-

tually no fish oil has been exported by Peru over the last 2 years, according to Barnes.

The breakdown of Peru's 1977 meal exports, by types, were derived from: Anchovies, 252,937 tons worth US\$109.9 million; mixed (anchovy and other fish), 141,861 tons valued at US\$59.2 million; and residues, 41,190 tons for US\$15.6 million.

The leading 1977 export markets, with tonnages in parentheses, were the German Democratic Republic (87,263), Japan (70,000), West Germany (36,544), Cuba (29,680), and Italy (27,878). The top five markets in 1976 were West Germany (76,618), the United States (64,017), GDR (56,748), Poland (41,581), and Italy (35,172).

Notable changes in export destinations for these 2 years involved shipments to the United States and Japan—reflecting in part the effects of the 200-mile coastal limits now imposed by more than 50 nations. Japan and the Soviet Union are traditionally the world's leading consumers of fishmeal.

Peru's fishmeal exports to Japan skyrocketed almost 67,000 tons from 1976 to 1977 as Japanese fishing fleets, that previously roamed the oceans for protein sources, faced curtailments in their fish catches as the new extensions of territorial waters replaced the old 12-mile zones.

In contrast, Peruvian meal exports to the United States—one of the many countries adopting the 200-mile limit—plunged some 57,000 tons from 1976 to 1977. This sharp decrease resulted largely from several factors, including increased usage within the United States of other protein meals, such as U.S. soybean meal, and the high world price for fishmeal. □

Spain's Mixed-Feed Industry Continues Dramatic Expansion

By José E. Vidal



Poultry producers are among the leading customers of Spain's mixed feed industry. The most dramatic improvement in feed performance has been in broiler production.

The author is the Senior Agricultural Specialist, Office of U.S. Agricultural Attaché, Madrid.

Probably no segment of Spanish agriculture has undergone more dramatic changes than the mixed-feed industry during the past 20 years. During this period, the industry has grown from a rudimentary, infant operation to a highly specialized \$2-billion business that has relied heavily on imported ingredients, especially from the United States.

However, the Government is now taking steps to lessen this dependency in light of the country's trade deficit that reached \$8.7 billion in 1976 and a preliminary \$7.6 billion in 1977. Feed imports, including soybeans for crushing, accounted for much of the country's agricultural trade deficit, that totaled \$800 million in 1976 and a preliminary \$700 million during January-September 1977.

The nation's need to meet the growing demand for animal products has been the common denominator in the growth and development of a modern mixed-feed industry. Average total meat consumption, including poultry, has nearly quadrupled from 15.5 kilograms in 1957 to an estimated 61.5 kilograms in 1976.

In 1977, Spain produced an estimated 10.8 million metric tons of manufactured feeds, an increase of 11 percent above that of the year earlier and about 42 times the amount produced in 1957.

The bulk of corn and protein meals required by the Spanish mixed-feed industry is imported. In 1976, Spain imported 3.5 million tons of corn, 416,000 of sorghum, 1.9 million of soybeans, and 581,120 of soybean meal—with a combined value of approximately \$1 billion. Of these, imports from the United States were about 2.6 million tons of corn, 87,325 of sorghum, 1.3 million of soybeans, and 347,061 of

soybean meal, with a total value of about \$655.7 million.

Spain's imports during January-September 1977 included 2.8 million tons of corn, 369,672 tons of sorghum, 1.2 million tons of soybeans, and 329,869 of soybean meal. Imports from the United States totaled 1.27 million tons of corn, 202,177 tons of sorghum, 822,156 of soybeans, and 125,136 of soybean meal.

The best growth prospects in consumption are in beef, lamb, and pork while demand for poultry and eggs appears to have reached the saturation point. However, a decline in fish catches—largely because of the extension of territorial waters of the European Community and other countries—may enhance the role of poultry and eggs as cheaper sources of proteins in the Spanish diet.

Despite the spectacular growth in the last two decades, caution should be used when projecting Spanish imports of feedgrains and protein meals. As a result of the country's chronic trade deficits, the drain in foreign exchange reserves, and repeated protests from some local farm groups, the Government is expected to make every effort to reduce imports of feedgrains and other feed ingredients.

An initial step in this direction was the recent introduction of a program designed to provide financial assistance to feed compounders and selected co-operatives in order to stimulate usage of domestically produced byproducts, such as sugar beet bagasse (pulp), sugar molasses, and olive and grape pulps. Eventual Governmental promotion of the use of wheat in certain feeds is possible. As well, domestic production of corn and barley is being encouraged.

Also, feed compounders, faced with a growing price/cost squeeze, would have to resort to a reduction in the soybean meal content of feeds should the price of this product increase significantly beyond current levels.

Still, it seems reasonable to assume that Spain's increased mixed-feed production will continue to require substantially higher quantities of carbohydrate and protein elements.

In 1977, the country approached the 11-million-ton level in mixed-feed production, including 5.4 million tons for poultry; 3.3 million for swine; and 2.1 million for other animals.

Approximately half of Spain's mixed-feed output is produced by an estimated 800 mills of various types while about 40 percent is manufactured by cooperatives and other livestock and poultry producers' associations. The balance of the total feed production is represented by on-farm processing operations.

Roughly 62 percent of the country's mills are considered to be small. Medium-size and large establishments (19 percent each) together represent 38 percent of the commercial operations. Commercial mixed-feed producing chains, of which there are about 12 major ones in Spain, account for an estimated 40 percent of the total commercial mixed-feed output.

The location of feed mills has not changed appreciably in recent years with the major part of the industry concentrated in the eastern part of the country in Catalonia and the Douro regions. Other important producing areas are the Central Plateau, the Levant, Andalusia, and the Ebro regions.

According to a report in mid-April 1978, the Government has authorized the establishment of an oilseed

crushing plant in Cuenca, the first of its kind to be built in the Central Plateau region.

Trade sources indicate that the most common form of formula feeds produced in Spain is meal or mash, which accounts for approximately 70 percent of total output. Pellets or cubes contribute about 28 percent of the total. Liquid feeds are just beginning to enter the market and so far have had little impact.

At the end of 1976, some 14,000 formulations were registered with the Ministry of Agriculture. Small plants normally put out not more than 10 different types of rations while medium-size and large mills operate with an estimated 40 and 70 formulations, respectively.

The following types of rations, in descending order of importance, account for about 70 percent of total mixed-feed production in Spain: Feeder hog, layer, broiler, dairy, cattle, and pig starter. Specialty feeds—pet, horse, and fish—represent but a fraction of commercial mixed-feed production, although they are becoming more popular.

The average price in November 1977 of formulations range from a low 13.70/14.50 pesetas¹ per kilogram for cattle and sheep supplemental feeds to a high 20.00/25.50 pesetas for broiler starter rations or early weaned pig formulations.

Trade data also disclose that an estimated 70 to 80 percent of the feed currently manufactured in the country is shipped in bags. No data are available by class of feed.

Currently, an estimated 30 percent of Spain's commercial mixed feeds are sold

directly by manufacturers to livestock and poultry producers, 40 percent by licensed dealers, and 10 percent by independent dealers. The balance is sold through unidentified channels.

About 90 percent of the nation's broilers, 65 percent of its layers, and 50 percent of its hogs are raised under some form of contractual arrangement between livestock producers and feed manufacturers. This trend toward integration has been motivated by problems encountered when trying to sell feeds directly to independent farmers. These difficulties have prompted the mixed-feed industry to try to avoid the inherent risks of overproduction and price pressure by securing a constant source of demand for its products.

The Spanish mixed-feed industry, one of the most modern in Western Europe, uses up-to-date techniques. Great progress has been made in the area of feed conversion where the average conversion rates are 4.3 for beef, 3.2 for pork, 2.1 for chicken meat, and 1.9 for eggs (dozen).

The Spanish formula-feed industry is no longer a "by-product" operation. Trade sources estimate that in calendar 1976 the industry processed about 6 million tons of feedgrains (including more than 3.5 million tons of corn) out of the country's total consumption of about 12 million tons of feedgrains. The industry also processed more than 2.2 million tons of protein meals (including close to 2 million tons of soybean meal), substantial quantities of milling byproducts, pulses, animal fats (65,000 to 80,000 tons, mostly tallow), vitamins, and additives into scientifically formulated and blended products of varying concentrations and nutrient compositions. □

Continued from page 9

Philippine Agriculture

Pinas Bureau of Agricultural Economics held its second nationwide livestock survey and scheduled another for early 1978. Official data from the 1977 census are not yet available, but it is believed all cattle and carabao numbers have declined slightly from 1976 levels and now are estimated at 1.7 million head of cattle and 2.7 million head of carabao.

The Philippines is nearly self-sufficient in pork production, but output of beef and carabeef is inadequate to meet current and future demand, particularly for high quality beef cuts. For 1977, pork production is estimated at about 275,000 tons, and beef and carabeef outturn, 137,500 tons. □

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¹ On exchange rate of 82.20 pesetas=US\$1.



First Class

Indonesian Rice and Wheat Imports To Rise Sharply

Indonesia's rice imports in 1978/79 are projected to reach a record high for the second consecutive year, according to a report from the Office of U.S. Agricultural Attaché in Jakarta. Although Indonesia is the third leading rice producer, the large domestic demand of its 135 million people makes Indonesia the world's No. 1 importer of rice.

To help combat the country's growing rice deficit in recent years, the Government is expending promotion of wheat usage. Today, more Indonesians are eating bread and other wheat flour products as the growth in rice consumption slows relative to that of wheat products. As a result, Indonesian wheat imports are rising rapidly and are forecast at nearly 1.4 million metric tons in 1978/79, compared with about 1.0 million tons in 1977/78.

Indonesian rice imports for 1978/79 (April-March) are preliminarily forecast to reach 3 million tons, assuming a rice production of 16 million tons (milled basis)

and a minimum rise of 4.3 percent in domestic consumption. The country's rice harvest in 1977/78 is estimated at 15.5 million tons (milled basis), compared with 15.8 million in 1976/77.

Indonesia has reportedly signed rice contracts with the People's Republic of China (PRC) and the Republic of China (Taiwan). The contract with the PRC covered a total of 500,000 tons, of which 200,000 are scheduled for delivery in 1978/79. Tonnage of the Taiwan agreement was placed at about 300,000 tons.

According to press reports, North Korea has agreed to ship 100,000 tons of rice to Indonesia, which also will receive about 270,000 tons from the United States in 1978/79 under the 1977 P.L. 480 agreement (amended). As well, Indonesia has requested an additional 500,000 tons of P.L. 480 rice.

Indonesia also is seeking 500,000 tons from Thailand, but drought conditions in

that country raise doubts about Thailand's ability to supply such quantities. However, if Thailand is able to fulfill the request, Indonesia will have covered more than half of its 1978/79 import requirements.

For the marketing year that ended March 31, 1978, Indonesian rice imports, including glutinous rice, were expected to top 2.5 million tons, an increase of 60 percent from the previous year's. To meet its increased rice requirements, Indonesia relied heavily on the PRC and Taiwan as well as traditional suppliers Thailand and Burma—and P.L. 480 shipments of U.S. rice. Indonesia also contracted smaller amounts from nontraditional sources: India, Brazil, the

Philippines, and the Republic of Korea.

Rice imports of nearly 384,000 tons in December ran 60 percent greater than the monthly high prior to 1977. January's import arrivals were slightly below December's and it appears that present port facilities limit monthly imports to about 400,000 tons during the rainy season.

The country's wheat imports in 1978/79 are predicted to rise 40 percent over the year-earlier level—estimated at 1.0 million tons—as the Government seeks to rebuild stocks and encourage greater domestic consumption, which is expected to expand 22 percent to nearly 1.3 million tons during 1978/79. □

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ble as additional tariff and nontariff restrictions are placed on imports.

The Middle East potential depends on the speed with which countries there complete—and the success with which they operate—certain new domestic poultry raising operations. Also, the nearness of certain European countries permits products to move by truck to the market. The logistics of distributing 100 to 300 tons from a few trucks are much simpler than unloading and distributing 2,000 to 5,000 tons from a ship. However, larger shipments of poultry meat and eggs have moved to this area and have been distributed. □